NPIC/TDS/D-706-67
23 February 1967

MEMORANDUM FOR THE RECORD

SUBJECT: Evaluation of Plotter Marking System.

1. Several marking systems were recently evaluated on the [redacted] 25X1 Plotter. Following are the most promising candidates for the marking system and a brief summary of the tests performed with them. A more complete description of these and other systems are to be provided by [redacted] 25X1 as part of their contract.

a. Marking media.

Two polyester base tracing films (Cronar[1], 5 mil, matte one side and Polytex[2], 126-3, 3 mil, matte one side) and one tracing paper were tried (Clearprint Technical Paper, No. 1000H). The polyester base films were superior to the paper for the following reasons.

(1) Better dimensional stability

(2) More transparency and thus better reproducibility

(3) Accepts ball point pen marking slightly better than paper

(4) Accepts capillary pen marking much better than paper

(5) More durable, less susceptible to tearing

The Polytex is recommended since it is less expensive than the Cronar. Neither material is presently available in 60 inch widths, but the Frederick Post Co. has announced that their film will soon be manufactured in that width. Fingerprints, dust, and other foreign markings were apt to cause skipping of the pens on all types of marking media tests. Therefore, the medium used should be carefully handled in order to avoid such markings.

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1. Dupont trademark for polyester base film.
2. Frederick Post trademark for polyester base film.

b. Capillary pens.

The best capillary pen system tested was a Koh-I-Nor Rapidograph, USA 62 J-2 using Keuffel and Esser Co. Leroy Black Waterproof Lettering Ink 580005. It has the following advantages.

(1) Excellent reproducibility of lines

(2) No ink spattering or smearing

(3) Fast drying.

It has the following disadvantages.

(1) Skips - particularly at higher speeds

(2) Pen tip clogs often when used on paper media

(3) Does not function well if not cleaned and handled with reasonable care

(4) Line weight varies with pen speed.

c. Ball point pens.

The ball point pen tested was a green, medium point pen, 7520-298-7046, manufactured by the Tuckersharpe Pen Co. It has the following advantages.

(1) Can draw approximately 6000 feet of continuous line before running dry

(2) Can withstand over 100,000 impacts of point in an up and down mode

(3) Reproducible lines made at all plotter speeds

(4) Inexpensive, easy to replace

2. Reproduction. Good reproductions of the green ball point pen on Polytex film were obtained on the Technifax machine in PSD. For making transparencies an Ozalid 102V film was run at 25 feet per minute with a white sheet used as a backup. For paper copies, an Ozalid 105SZ paper was run at 47 feet per minute.

3. Recommendations. It is recommended that for most plots, the green medium point pen, 7520-298-7046, manufactured by the Tuckersharpe Pen Company be used with a Post, Polytex 126-3 marking medium. The Koh-I-Nor, Rapidograph, USA 62 J-2 pen can be used at slower plotter speeds if a heavy line is necessary.

25X1

[redacted]

Support Systems Branch, DS/TDS

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